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ABSTRACT

Individual interviews and a series of ten tests were used to investigate the order in which children acquire reading concepts and demonstrate reading skills. Each of 44 first grade and 22 kindergarten students was tested and interviewed three times during the 1977-78 school year, and their responses were sorted and tabulated to determine whether each of 22 hypotheses should be accepted or rejected. The hypotheses considered the order of learning letters and words in spoken/written contexts and how concepts about books and reading attitudes were developed. Four conclusions were drawn from the study: knowledge of letter names is present among all children who learn to read words, whether the letter names are learned in school or before entering school. There is a stage in letter/word concept development during which a child believes that a word must be more than one letter. Children without the concept that print and not picture is read still are able to recognize words, but only those with the concept can actually read words. Some letter recognition ability may be prerequisite to performing satisfactorily on the Word Enumeration Task and to matching upper and lower case letters. (RL)

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ATTAINMENT OF SELECTED CONCEPTS RELATED TO READING BY KINDERGARTEN AND FIRST GRADE CHILDREN

Margaret Dupree Carswell

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INTRODUCTION

The development of basic concepts that enable a child to learn to read is a topic which has received increasing attention in recent years. Researchers have sought by various methods to gain information that will contribute to our understanding of the processes involved. It has been observed that children in the five to seven age range do not understand exactly what is involved in the task of reading. Clay (1972b) said they sometimes cannot find "their way around" a page. Vygotsky (1962) concluded that they have only a vague idea of the usefulness of written language. Vernon (1957) called it "cognitive confusion." Reid (1966) and Downing (1969) both concluded, after research with five-year-old school beginners, that these children have great difficulty in understanding the purpose of written language and in understanding the abstract technical terms used by teachers in reading instruction. Specifically, the meanings of such terms as "word," "sound," and "letter" were not clear to the students.

Clay's (1972b) longitudinal research into the early reading behavior of New Zealand children has clarified some aspects of early reading behavior. Clay described several of the sources of confusion faced by young children when first they encountered the reading task. For example, the children may not realize that it is the print, not the pictures, which is read. After almost a year in school some children still moved from right to left or bottom to top across a page of print. They did

not necessarily know that the left hand page was read before the right hand page. Some of Clay's subjects still confused the concept of a letter with the concept of a word after nearly a year of schooling. Such misconceptions can seriously interfere with the acquisition of beginning reading skills.

Gibson and Levin (1975) stated that it is the beginning phase of learning to read that we know the least about. They emphasized that the mere presence of large amounts of print in daily surroundings facilitates the perceptual learning which is invaluable preparation for reading. In Frank Smith's (1975) discussion of comprehension, he states that a child makes sense of the world by relating the unfamiliar to the known. Therefore, the amount that is already known and can be brought to bear on any situation will determine to a large extent what is learned in that situation. Sometimes a child's first encounter with print is in school; he comes to school never having had any experience in analyzing that two-dimensional space which is a page of print. However, even a child who has previously been exposed to books and print may not be at a tremendous advantage. Heretofore, he has been free to scan pictures and books in any direction he chose, and has not found it necessary to limit his pattern of search in any way.

The prereading skills and concepts that can be helpful to a child are numerous. Shankweiler and Liberman (1972) contend that everything the beginner reads must be analyzed into words. According to them, the primary difficulty in reading acquisition is in dealing with words and their components, not in dealing with connected text. Dennard and Mortensen (1977) have identified 25 beginning skills. Whether or not these are hierarchical is as yet undetermined; research to date has

not borne out the notion that prereading and early reading concepts and skills must be acquired in invariable sequence. Many unknowns remain in the area of beginning reading, and the existing knowledge is fragmented.

There seems to be universal agreement that learning to read is a highly complex cognitive process which requires one to master concepts and skills of ever-increasing complexity. Virtually all textbooks on the teaching of reading include statements to the effect that progress in reading is sequential or hierarchical.

There is a pervasive recurrence in the literature of terms like "sequential, development order" (Stanchfield, 1972). Yet, though a hierarchy, in which certain skills are prerequisite to others, is explicitly or implicitly recognized throughout the literature, a detailed description and validation of this hierarchy has not been provided, particularly for the very early stages of reading. It is not known whether or not a hierarchy among these skills exists. Attempts have been made to place some of the higher level reading skills in a hierarchy (Bloom, 1956; Smith and Barrett, 1974), but this type of effort has not been applied to the very early skills.

THE STUDY

This study was an attempt to ascertain whether or not certain component concepts and skills characteristic of early reading behavior are truly prerequisite to other such concepts and skills. The purpose of this study was to investigate the order in which kindergarten and first grade children acquire concepts and demonstrate skills related to reading, primarily concepts and skills involving letters and words. In

particular, the order of learning in two major strands was investigated:

I. Letters and Words (Spoken and Written)

II. Concepts about Books and Reading

Procedures

This study was undertaken in a southeastern city with a population of 34,240. Two elementary schools participated in the study. A stratified sample of 66 subjects, 44 first graders and 22 kindergarteners was drawn from the 11 first grade classes and four kindergarten classes. The sample was 62 percent white and 38 percent black.

Each subject was tested and interviewed three times during the 1977-78 school term: in September, in December, and in March. The subjects' responses were sorted and tabulated to determine whether the researcher should reject or fail to reject each hypothesis on the basis of each subject's responses.

Hypotheses

The hypotheses are not listed in a proposed hierarchical order. Some are converse statements of others. They do not exhaust the possibilities, but rather they include those thought most likely to reveal the presence of a hierarchy.

1. There are no children who can recognize sight words, but cannot tell the examiner how many words are on cards.

2. There are no children who can tell the examiner how many words are on cards, but cannot recognize the letters of the alphabet.

3. There are no children who can recognize sight words, but cannot recognize the letters of the alphabet.

4. There are no children who can recognize sight words, but cannot name letters of the alphabet.

5. There are no children who can read sight words, but cannot name letters of the alphabet.

6. There are no children who can recognize sight words, but hold the concept that picture, not print, is read.

7. There are no children who hold the concept that print, not picture, is read, but cannot recognize sight words.

8. There are no children who can read sight words, but do not hold the concept that print, not picture, is read.

9. There are no children who can draw lines between the words in a sentence, but cannot recognize sight words.

10. There are no children who can recognize sight words, but cannot draw lines between the words in a sentence.

11. There are no children who can read sight words, but cannot draw lines between the words in a sentence.

12. There are no children who can draw lines between the words in a sentence, but cannot read sight words.

13. There are no children who can read sight words, but cannot demonstrate an understanding of the relationship between written and spoken length of words.

14. There are no children who can demonstrate an understanding of the relationship between written and spoken length of words, but cannot read sight words.

15. There are no children who can read, but do not have the concept of silent reading.

16. There are no children who have the concept of silent reading, but cannot read.

17. There are no children who can match upper and lower case letters, but cannot recognize the letters of the alphabet.

18. There are no children who can match upper and lower case letters, but cannot name letters of the alphabet.

19. There are no children who can draw lines between the words in a sentence, but cannot tell the examiner how many words are on cards.

20. There are no children who can tell the examiner how many words are on cards, but cannot draw lines between the words in a sentence.

21. No kindergarten children hold the concept of silent reading.

22. No children will write a letter or a word and be unable to identify that letter or word.

Description of the Instruments

Murphy Durrell Reading Readiness Analysis (MDRRA)

The Letter Names Test, Part I - Capital Letters and Part II - Lower Case Letters of the Murphy-Durrell Reading Readiness Analysis (Murphy and Durrell, 1965) was administered. On each of these subtests, subjects are required to choose and mark the letter named by the examiner. Each item consists of an array of five letters. The predictive validity coefficients for the MDRRA with the Stanford Achievement Test - Primary I Reading Test are Letter Names and Word Reading .54; and Letter Names and Paragraph Reading .57.

Matching Upper and Lower Case Letters

For this test, Part II of the Letter Names Test of the MDRRA was used. However, instead of naming a letter for the subjects to mark,

the examiner showed a capital letter on a flashcard and asked the subjects to "Mark the lower case letter that goes with this one." or "Mark the small letter that goes with this one."

Word Recognition Task

This task was designed by the experimenter to determine whether the subjects recognized words from the basal series being used and/or words from Durkin's (1966) Test Used to Identify Early Readers. Each of the 32 items consisted of an array of four words. Words with the same beginning sounds or letters were not included in the array for any item, so that students who used the beginning sound as a clue could choose the correct answer. The examiner instructed the subjects to mark the word they heard spoken.

Letter Naming Task

Subjects were tested individually by being shown capital letters and lower case letters on individual flashcards and asked to name the letters they saw.

Word Reading Task

Subjects were individually tested by being asked to read sight words which were shown to them on flashcards typed in primary type.

Word Boundaries Task (WBT)

Subjects were shown four sentences, one at a time, from the preprimer Sun Up (Early, et. al., 1970), and asked to make vertical lines between the words in the sentences. Eighty percent of the words, or 16 words, correctly marked was designated as satisfactory performance.

Mow Motorcycle Test

In this test designed by Rozin et. al. (1973), subjects were shown a long and short word written on a card (e.g. mow and motorcycle) and asked which word corresponded to a spoken word (e.g. mow). The long words all had four or five syllables, while the short words had only one syllable and no more than four letters. Eighty percent correct responses, or seven correct responses out of eight, was designated as satisfactory performance.

Word Enumeration Task (WET)

Subjects were shown eight cards one at a time. On each card was printed a two or three word phrase. Subjects were asked, "How many words are on this card?" To achieve 80 percent correct responses, seven correct responses out of eight were necessary to constitute a satisfactory performance.

Sand Test

The Sand Test (Clay, 1972a) was used to assess the subjects' concepts about print. The subjects were asked to identify (1) the front of the book, (2) that print tells the story, (3) a letter, (4) a word, (5) the first letter of a word, (6) big and little letters, (7) function of the white space, (8) uses of punctuation, and (9) directional rules.

Slosson Oral Reading Test (SORT)

The Slosson Oral Reading Test (Slosson, 1963) was administered to the first grade subjects in May as a measure of reading achievement.

Interview

Subjects were individually asked 12 questions designed to reveal some of their concepts about books and reading.

Discussion of Hypothesis Testing

In order to best discuss the meaning of these findings, the information is broken into separate topics for discussion.

Printed Words: Recognizing, Reading, Enumerating, Separating and Relating to Spoken Words

Hypothesis 1 was rejected because 31 of the 66 subjects could recognize sight words without being able to tell the examiner how many words they saw on cards. Therefore ability to perceive words as separate entities does not appear to be prerequisite to recognition of sight words as usually tested.

Failure to reject Hypotheses 3, 4, and 5 showed that none of the subjects was able to read words except those subjects who were able to recognize and name letters. It has often been said that letter name knowledge is not prerequisite to learning to read words (Huey, 1908; Doman, 1964; Samuels, 1972). Perhaps the finding that no subjects could recognize or read words without demonstrating letter name knowledge can be explained by the fact that it is common practice in schools and among parents to teach letter names before teaching words. On the other hand, it may be the case that it is nearly impossible in our culture to learn printed words without also acquiring some knowledge of letter names. Regardless of the explanation, this research by itself does not rule out the possibility that learning some letter names is prerequisite to word reading.

With Hypotheses 6 and 7 information was sought as to whether the concept that print, not picture, is read is basic to ability to recognize words. Both these hypotheses were rejected. It was found that ten children, or 15 percent of the sample, were able to recognize sight words even though they indicated they thought picture, not print, was read. Thirty-one subjects, or approximately half the sample indicated that they knew print, not picture, is read; but could not recognize sight words. Although Clay indicated that pointing to the picture meant that the child thought the picture, not the print, was read; it is possible that some subjects did not interpret the question exactly as Clay intended. Perhaps some subjects are sure that print is read when there are no pictures on the page. However, when print and picture appear on a page together, confusion arises as to which takes priority. This is consistent with the findings of Byrne and Mason (1976).

Failure to reject Hypothesis 8 indicates that in order to read words, which is more difficult than to recognize words, a subject must have the concept that it is the print that is read, and not the pictures. This seems completely self-evident. However, in the very early stages of reading, when students have been taught ten words or less, must rely heavily upon picture cues and memory of story content. This hypothesis was tested to discover whether students are, in fact, aware that it is the print that is read.

As shown by the results related to Hypothesis 9, only 16 subjects, or 25 percent, were able to perform satisfactorily on the preprimer level Word Boundaries Task without having some word recognition ability. It seems likely that this is because it is difficult to mark the boundaries of written words when one does not know what a word is. To know

what a word is, one must probably know a few specific words, at least at the recognition level. That is, the concept of a word is not easily attained except by generalizing from a number of known words to the more global concept of a word. Rejection of Hypothesis 10 showed, however, that 17 subjects were able to recognize sight words without being able to perform satisfactorily on the Word Boundaries Task. Thus, neither is prerequisite to the other, but the two usually develop within a short time of one another. Most subjects were able to do both tasks, or neither.

Hypotheses 11 and 12 dealt with word reading and word boundaries, as opposed to word recognition and word boundaries, which were the focus of Hypotheses 9 and 10. Rejection of both Hypotheses 11 and 12 indicates that some children are able to mark the boundaries of written words before learning to read any words, while others are not able to mark written word boundaries until after learning to read some words. In this study ten subjects, or 15 percent of the sample, could read five words although they did not perform satisfactorily on the WBT. Twenty-eight subjects, or 42 percent, could perform satisfactorily on the WBT although they could not read five printed sight words. It therefore appears that marking word boundaries may be an easier task than reading words. The WBT used in the present study, however, included only sentences with usual spacing. It is possible that a word boundaries task in which the spaces between words were omitted, or one with a space after every letter, might be more difficult than reading words or recognizing words. This was not tested in the present study.

The rejection of Hypotheses 13 and 14 shows that neither ability to read words nor ability to understand the relationship between spoken

and written length of words is prerequisite to the other. Twenty-five subjects, or 38 percent of the sample, were able to read five printed sight words although they could not perform satisfactorily on the Mow Motorcycle Test, while 13 subjects, or 20 percent, were able to perform satisfactorily on the Mow Motorcycle Test although they could not read five printed sight words. Either of these abilities can occur first in a child's development of reading behavior. Accurate perception of the relationship between spoken and written length may be related to the amount and kind of experience that a child has had with print. That is, perhaps children who have been read to, and have spent much time looking at books, are more likely to be aware that words with many letters usually sound longer when spoken than words with few letters. One certainly would expect that a child who has written many names would develop the concept that oral word length and printed word length were related.

One misconception that occurred frequently was that of failing to recognize one letter words as words. The incidence of this misconception was so high that it seems to be a stage in children's concept development with regard to letters and words. A child at this stage gives the following responses when asked, on the WET, "How many words are on this card?"

what I want	2
if you wish	3
you are	2
I was	1
to go	2
if I must	2

for the girl 2

a pretty picture 2

Apparently, one letter words are not recognized as words by children at this stage.

Hypothesis 2 was tested to discover whether letter recognition ability was prerequisite to ability to perceive words as separate entities. For all subjects but one, letter recognition ability was prerequisite to success on the WET. This was not surprising because in order to count words, one must be aware of the difference between letters and words. Apparently this concept is acquired inductively by associating names with specific letters and/or words.

Letters: Matching, Naming and Recognizing

Some of the findings related to letters were discussed above. The remaining ones will be discussed in this section.

Hypothesis 17 was investigated to discover whether the subjects could match upper and lower case letters without being able to recognize letters by name. Only two subjects were able to do this. It appears that matching upper and lower case letters is extremely difficult until one is able to recognize at least some letters by name. Understanding of the abstract correspondence between upper and lower case letters was unlikely to occur in the absence of specific examples for which the subjects had learned to recognize names.

Hypothesis 18 sought information as to whether the subjects could match upper and lower case letters without being able to name individual letters when the letters were presented on flashcards. Seven subjects were able to do this. Although the hypothesis was rejected, the results

indicate that it is difficult to match upper and lower case letters without being able to name the letters. Recognition is usually not enough; one must be able to recall the name of the letter, not merely recognize it when it is spoken by someone else.

Hypothesis 22 was tested to discover whether any child could write letters or words and remain unable to tell the examiner what letters or words he had written. The hypothesis was rejected because 20 subjects or 30 percent of the sample, did write letters or words they could not identify.

Concepts of Silent Reading

Question 10 of the Interview (Can people read without talking?) was used to discover whether the subjects understood that silent reading was possible. Hypotheses 15 and 16 sought to determine whether the concept of silent reading was prerequisite to learning to read, whether learning to read was prerequisite to attaining the concept of silent reading, or whether the two were not interdependent. Results indicated that neither attainment of the concept of silent reading nor mastery of the task of reading is prerequisite to the other. Fifteen subjects, or 23 percent of the sample, could read but lacked the concept of silent reading; while 41 subjects, or 68 percent, had attained the concept of silent reading before learning to read. However, the responses of some subjects over three interviews indicated they had the concept of silent reading before learning to read; but later, when they learned to read, believed silent reading was not possible. Perhaps they thought

it possible until they tried it personally; or it may be that they believe silent reading is possible for others, older people for instance, but not for them.

Hypothesis 21 was tested in order to discover whether any of the kindergarten subjects had developed the concept of silent reading. Rejection of this hypothesis was because eight kindergarteners, or 36 percent, had developed the concept of silent reading.

Discussion of Correlation and Regression Analyses

Tables 1, 2, and 3 show the intercorrelations between the measures used at each of three points in time. Table 4 gives the product-moment correlations of September, December, and March measures with the Slosson Oral Reading Test given in May. As can be seen in Table 4, the December Word Reading score had the highest correlation with the SORT of any of the measures used, a correlation of .77. In the case of Word Recognition the December score also correlated more highly with the criterion measure than either the September or the March score. Similarly, the Matching score in September correlated more highly with the SORT than the December or March Matching score. These findings indicate that the time at which students are tested may be of crucial importance to the predictive value of the tests. Little is learned if the students are tested at a time when none have mastered the skill or concept that is being sought. Likewise, little is learned by testing at a time when virtually all have mastered the skill or concept. The testing is of most value in predicting future performance if it is done at a time when there is a spread of scores from low to high.

Table 1

Correlations Between Scores on Measures Taken in September 1977

	WBT	WET	MM	WDREC	WDREAD	LR	MATCH	LN	SR	WINB
WBT		.18	.31	.18	.09	.30	.25	.19	.25	.32
WET			.01	.50	.42	.23	.28	.27	.29	.25
MM				.29	.11	.07	.23	.01	.22	.19
WDREC					.62	.51	.61	.56	.51	.47
WDREAD						.23	.30	.30	.26	.26
LR							.57	.72	.46	.22
MATCH								.64	.29	.37
LN									.40	.32
SR										.37
WINB										

Word Boundaries Task (WBT)
Word Enumeration Task (WET)
Mow Motorcycle Test (MM)
Word Recognition Task (WDREC)
Word Reading Task (WDREAD)
Letter Recognition Task (LR)
Matching (MATCH)
Letter Naming (LN)
Silent Reading (SR)
What's in Books (WINB)

Table 2

Correlations Between Scores on Measures Taken in December 1977

	WBT	WET	MM	WDREC	RDREAD	LR	MATCH	LN
WBT		.39	.12	.39	.37	.39	.57	.40
WET			.24	.60	.61	.19	.39	.23
MM				.44	.46	.22	.29	.22
WDREC					.65	.46	.60	.46
WDREAD						.36	.56	.43
LR							.86	.93
MATCH								.83
LN								

Word Boundaries Task (WBT)
Word Enumeration Task (WET)
Mow Motorcycle Test (MM)
Word Recognition Task (WDREC)
Word Reading Task (WDREAD)
Letter Recognition Task (LR)
Matching (MATCH)
Letter Naming (LN)

Table 3

Correlations Between Scores on Measures Taken in March 1978

	WBT	WET	MM	RDREC	WDREAD	LR	MATCH	LN
WBT		.69	.16	.60	.59	.18	.37	.20
WET			.12	.61	.69	.03	.30	.06
MM				.37	.48	.34	.34	.35
WDREC					.87	.64	.81	.66
WDREAD						.50	.67	.52
LR							.93	.98
MATCH								.94
LN								

Word Boundaries Task (WBT)
Word Enumeration Task (WET)
Mow Motorcycle Test (MM)
Word Recognition Task (WDRED)

Word Reading Task (WDREAD)
Letter Recognition Task (LR)
Matching (MATCH)
Letter Naming (LN)

Table 4

Product-Moment Correlations of September, December, and March Measures with Slosson Oral Reading Test Scores in May

	September	December	March
Word Boundaries Task	.36	.39	.41
Word Enumeration Task	.36	.47	.43
Mow-Motorcycle Test	.35	.45	.48
Word Recognition Task	.66	.68.	.55
Word Reading Task	.32	.77	.73
Letter Recognition Test	.49	.39	.28
Matching	.57	.54	.37
Letter Naming Test	.48	.45	.29
Silent Reading	.40		
What's in Books	.17		

The above reported scores (Word Reading, Word Recognition, and Matching) were the only measures that correlated as highly as .50 with the SORT. Here the difference between correlates and prerequisites must be noted. Even a measure that correlates very highly with the criterion measure need not be a prerequisite; and a prerequisite need not have a high correlation with the criterion measure.

In Tables 5, 6, and 7 the results of the multiple regression analyses are summarized. Asterisks appear beside those variables which added more than .01 to the multiple correlation coefficient.

In Table 5, which reports the September multiple regression analysis, all ten of the variables entered contributed to the overall significant correlation of .78. However, a correlation of .74 could be achieved with only three of these: Word Recognition, Word Boundaries, and What's in books? Only these made a significant contribution.

In December (see Table 6), of a possible eight variables entered into the multiple regression equation, only seven made a contribution to the overall significant multiple correlation of .82. A correlation of .81, however, could be achieved with only the first two variables: Word Reading and Word Recognition. Only these two made a significant contribution.

Likewise, in March (see Table 7), seven of the eight variables made a contribution to the overall significant multiple correlation of .78, but a correlation of .73 was achieved with only the first variable, Word Reading, which was the only significant contributor to the multiple correlation.

Table 5

Multiple Correlation of September Scores With the Slosson Oral Reading Test

Step	Variable Entered	F to Enter	Multiple R	Overall F
1	Word Recognition Task	31.72*	.66	31.72*
2	Word Boundaries Task	5.06*	.70	19.92*
3	What's in Books?	4.95*	.74	16.21*
4	Matching	3.62	.77	13.86*
5	Mow-Motorcycle Test	.76	.77	11.17*
6	Silent Reading	.55	.78	9.29*
7	Letter Naming Test	.19	.78	7.81*
8	Word Enumeration Task	.17	.78	6.70*
9	Word Reading Task	.07	.78	5.81*
10	Letter Recognition Test	.02	.78	5.08*

*Significant at the .05 level

Table 6

Multiple Correlation of December Scores

with the Slosson Oral Reading Test

Step	Variable Entered	F to Enter	Multiple R	Overall F
1	Word Reading Task	62.31*	.77	62.31*
2	Word Recognition Task	6.26*	.81	38.19*
3	Word Enumeration Task	1.04	.81	25.83*
4	Word Boundaries Task	.92	.82	19.57*
5	Mow-Motorcycle Test	.36	.82	15.47*
6	Letter Naming Test	.18	.82	12.64*
7	Letter Recognition Test	.49	.82	10.75*

*Significant at the .05 level

Table 7

Multiple Correlation of March Scores With

the Slosson Oral Reading Test

Step	Variable Entered	F to Enter or Remove	Multiple R	Overall F
1	Word Reading Task	47.77*	.73	47.77*
2	Word Recognition Task	2.56	.75	26.06*
3	Mow-Motorcycle Test	1.71	.76	18.24*
4	Matching	.74	.76	13.78*
5	Word Enumeration Task	.88	.77	11.17*
6	Word Boundaries Task	.33	.77	9.20*
7	Letter Naming Test	.05	.77	7.69*

*Significant at the .05 level

As can be seen in the Multiple Correlation Summary Tables 5, 6, and 7, the contribution made by a particular measure can change considerably over time. For example, Word Boundaries, which was the second greatest contributor to the September multiple regression analysis dropped to sixth (and non-significance) in March.

Conclusions

Four major conclusions can be drawn from this study:

1. Knowledge of letter names is present among all children who learn to read words, whether the letter names are learned in school or before school entry. While this phenomenon does not prove letter name learning to be prerequisite to word learning, it does not disprove such a possibility.

2. There is a stage in children's concept development, with regard to letters and words, during which a child believes that a word must be more than one letter. At this stage he does not think of one-letter words as words.

3. Even though children who do not hold the concept that print, not picture, is read may be able to recognize words, only those who hold this concept can read words.

4. It appears likely that some letter recognition ability may be prerequisite to satisfactory performance on the Word Enumeration Task and to matching upper and lower case letters.

Recommendations and Implications

While this study was not sufficiently broad to make firm generalizations, it does have implications for teaching and for further study. The following recommendations are proposed.

1. Since many children are unsure of the meanings of terms like "letter" and "word," it might be useful to investigate the effect on beginning reading achievement or directly teaching the meaning of such terms very soon after school entry. It also might be useful to investigate the direct teaching of the concept that print, not picture, is read.

2. In the present study the Word Enumeration Task contained several one-letter words, while the Word Boundaries Task did not. The Word Enumeration Task proved more difficult for the subjects. An experiment should be conducted in which both tasks contain one-letter words. One could test the hypothesis that this would make the two tasks equivalent.

3. The following hypotheses, which could not be rejected in this study, should be tested in other settings.

Hypothesis 3. There are no children who can recognize 12 sight words, but recognize fewer than eight letters.

Hypothesis 4. There are no children who can recognize 12 sight words, but can name no letters.

Hypothesis 5. There are no children who can read five printed sight words, but can name no letters.

Hypothesis 8. There are no children who can read five printed sight words, but hold the concept that picture, not print, is read. By so doing the generalizability of the results could be increased.

4. Further study on young children's concepts of print, such as those tested by the Sand test, could be instructive. Since it is difficult to obtain such information from young children accurately with a test, case studies and continuous observation may be necessary.

5. The results of this study can be interpreted as support for continuous observation and informal testing of students. On the basis of this research, it is recommended that decisions regarding placement and instruction of beginning readers not be made on the basis of a single set of tests given at some one time.

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